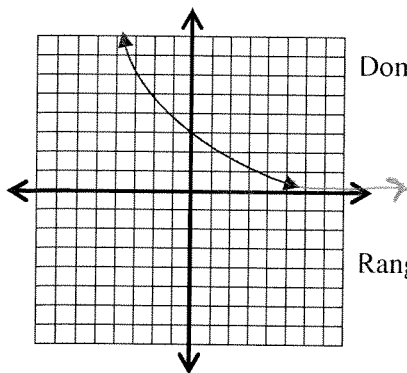
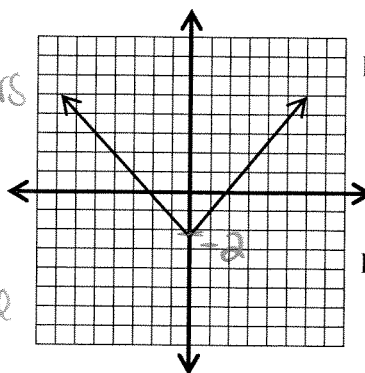


Describe the Domain and Range for each of the functions.

1.

Domain  $-\infty \leq x \leq \infty$   
all numbersRange  $0 < y \leq \infty$   
anything more than 0.

2.

Domain  $-\infty < x < \infty$   
All numbersRange  $-2 \leq y \leq \infty$   
anything greater than -2.Given the functions  $f(x) = x^2 + 7x$  and  $g(x) = \sqrt{x-3}$  find the value of each expression below.

3.  $f(4)$   $x=4$

$$(4)^2 + 7(4)$$

$$16 + 28 = 44$$

4.  $g(19)$   $x=19$

$$\sqrt{19-3}$$

$$\sqrt{16} = 4$$

5.  $x$ , if  $f(x) = -12$

$$-12 = x^2 + 7x$$

$$0 = x^2 + 7x + 12$$

$$\text{factor } 0 = (x+3)(x+4)$$

$$x = -3$$

$$x = -4$$

6.  $x$ , if  $g(x) = 4$

$$4 = \sqrt{x-3}$$

$$4^2 = (\sqrt{x-3})^2$$

$$16 = x-3$$

$$16+3 = x$$

$$19 = x$$

For each pair of equations below, determine where the graphs intersect. (Solve)

7.  $y = x^2 + 5x - 10$

set equal

$$y = 4 \text{ always } 4$$

$$x^2 + 5x - 10 = 4$$

$$x^2 + 5x - 14 = 0$$

$$(x+7)(x-2) = 0$$

$$x = -7$$

$$x = 2$$

$$7 \times -2$$

$$-14$$

$$5$$

intersections:  
 $(-7, 4)$  &  $(2, 4)$ 

8.  $y = 2x + 7$

$$y = 10x + 3$$

$$2x + 7 = 10x + 3$$

$$7-3 \quad | \quad 10x-2x$$

$$\frac{4}{8} = \frac{8x}{8}$$

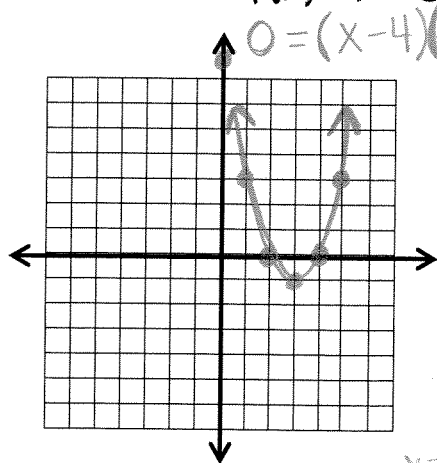
$$\frac{1}{2} = x$$

$$y = 2\left(\frac{1}{2}\right) + 7$$

$$= 1 + 7$$

$$y = 8$$

$$\left(\frac{1}{2}, 8\right)$$

9. Graph the function  $f(x) = x^2 - 6x + 8$  and find the following.

$$0 = (x-4)(x-2)$$

x	y
1	3
2	0
3	-1
4	0
5	3
0	8

$$x=3 \quad 3^2 - 6(3) + 8 = -1$$

$$9 - 18 + 8$$

$$x=5 \quad 5^2 - 6(5) + 8 = 3$$

$$25 - 30 + 8$$

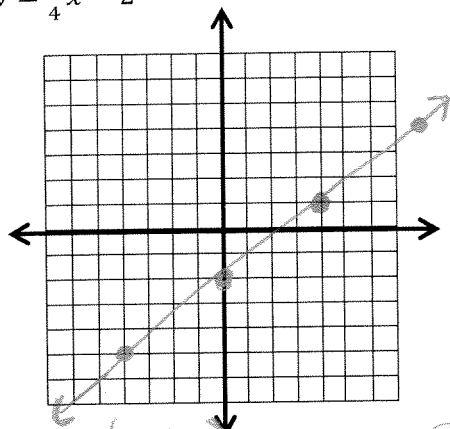
$$x=1 \quad 1^2 - 6(1) + 8 = 3$$

$$1 - 6 + 8$$

Domain All numbers  
 $-\infty \leq x \leq \infty$ Range  $-1 \leq y \leq \infty$ x intercepts  $(2, 0)$  &  $(4, 0)$ y intercept  $(0, 8)$

Graph each function below and find the x and y intercepts

10.  $y = \frac{3}{4}x - 2$

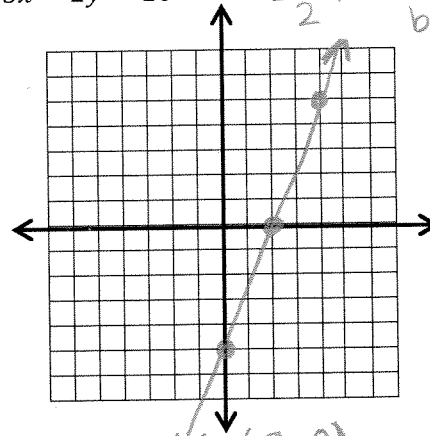


x intercept (2.67, 0)  $\rightarrow 0 = \frac{3}{4}x - 2$

y intercept (0, -2)  $2 = \frac{3}{4}x$

$8 = 3x$   $(x = 2.6)$

11.  $5x - 2y = 10$



x intercept (2, 0)

y intercept (0, -5)

Find the equation for each line described below

12. The line that passes through the point (2, 5) and has a slope of -3

$y = -3x + 11$

$-3(2) + b = 5$   
 $-6 + b = 5$   
 $b = 11$

13. The line that passes through the points (-1, 3) and (1, 9)

$y = 3x + 6$

$m = \frac{6}{2} = 3$

Solve each equation below.

14.  $\frac{3x+1}{4} = \frac{2x+7}{5}$

$x = \frac{23}{7} \approx 3.29$

$5(3x+1) = 4(2x+7)$   
 $15x+5 = 8x+28$   
 $15x-8x = 28-5$   
 $7x = 23$   
 $x = \frac{23}{7}$

15.  $\frac{x}{2} + \frac{4}{5} = 3$

common denominator

$\frac{5x}{10} + \frac{8}{10} = 3$

$\frac{5x+8}{10} = 3$

$5x+8 = 3(10)$

$5x+8 = 30$

$\frac{5x}{5} = \frac{22}{5}$

$x = \frac{22}{5} = 4.4$

16. The booster club has raised \$6000. They expect to raise \$800 per week. In how many weeks will they have \$20,000? Complete the table, write an equation and solve.

Week	0	1	2	3
\$	6000	6800	7600	8400

$+800$   $+800$   $+800$

Equation  $y = 800x + 6000$

$20,000 = 800x + 6000$   
 $14,000 = 800x$   
 $\frac{14,000}{800} = \frac{800x}{800}$   
 $17.5 = x$

Number of weeks to reach \$20,000 17.5